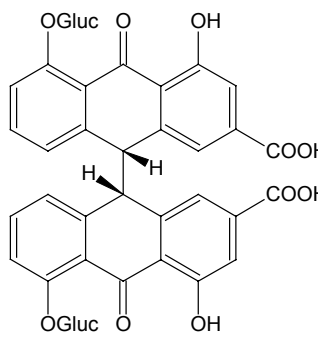


CERTIFICATE OF ANALYSIS

Date: 26.01.2006
CA No.: 1342/2

Product name: Sennoside B

| DETERMINATION | | SPECIFICATION | RESULT |
|---|--|--|--------|
| <p>Basic data</p> <p>Denotation: Sennoside B Chem. name: (R*,S*)-5,5'-Bis(β-D-glucopyranosyl-oxy)-9,9',-10,10'-tetrahydro-4,4'-dihydroxy-10,10'-dioxo[9,9'-bianthracene]-2,2'-dicarboxylic acid</p> <p>Synonyms: Batch No.: 0511203 CAS No.: [128-57-4] Formula: C₄₂H₃₈O₂₀ Molecular weight: 862.72 Storage conditions: <4 °C, light protected Source: Cassia angustifolia Stable until: November 2008 Date of manufacture: November 2005 Article No.: A6763</p> | | <p>Molecular formula</p>  | |
| <p>Properties</p> <p>Appearance Solubility</p> <p>Identity</p> <p>Melting point</p> <p>DAD UV-Spectrum</p> <p>Purity</p> <p>HPLC</p> | <p>yellow crystalline powder</p> <p>poorly soluble in Water, Methanol, soluble in Alkalies</p> <p>180 – 190 °C (sint.), 210 – 225 °C (melting u. dec.)</p> <p>Maxima at 268, 360 ± 2 nm</p> <p>>98.0 % at 270 nm, Spectrum Max Plot</p> | <p>conforms</p> <p>conforms</p> <p>softens at 183 – 185 °C, 215 – 222 °C melting (dec.); conforms</p> <p>λ_{max} = 267, 360 nm; conforms</p> <p>98.98 %; 98.69 %; conforms</p> | |

Result: The product meets the requirements

Analytical Report to the Certificate of Analysis (CA)

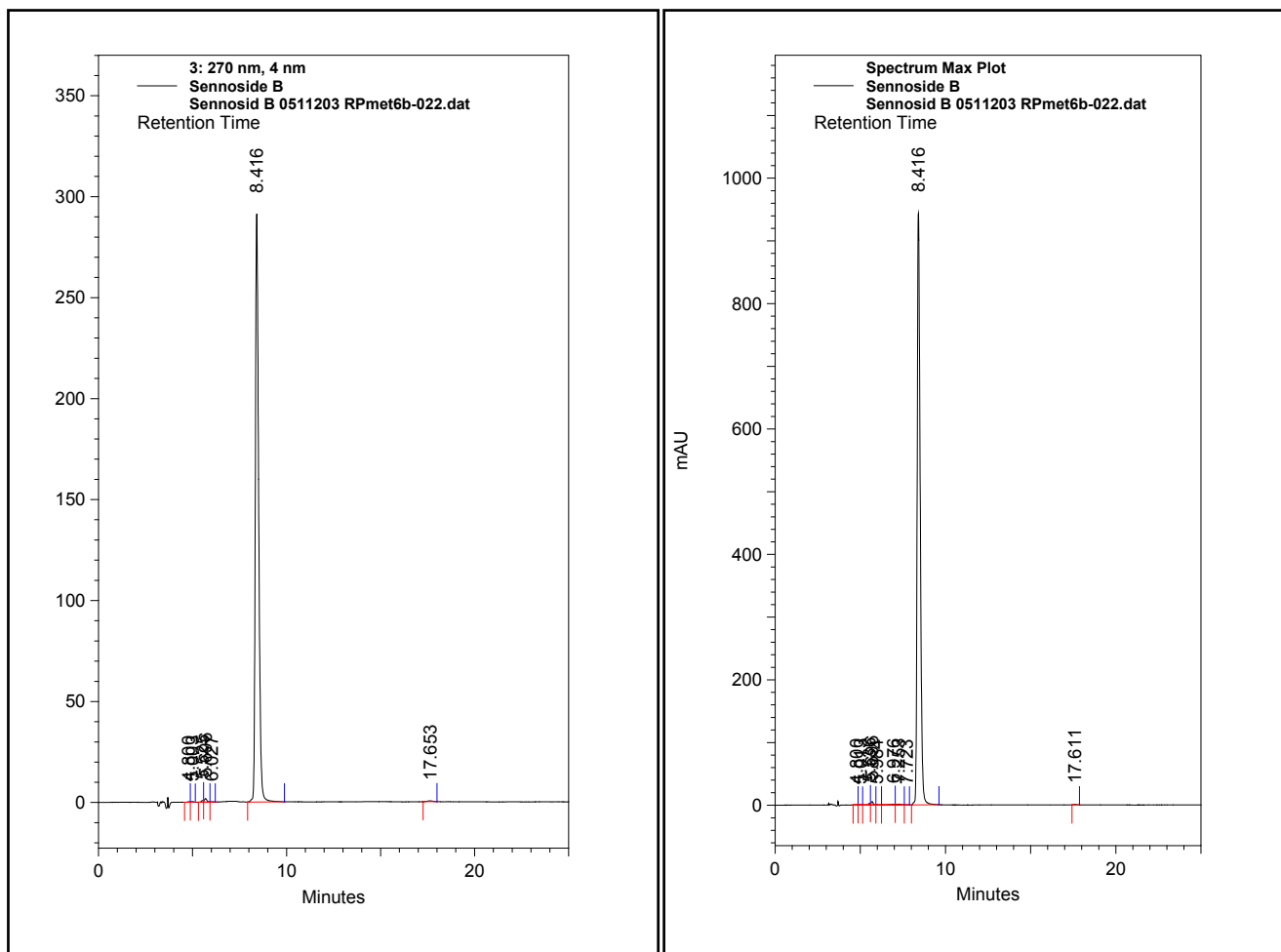
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Sennoside B

Batch No.: 0511203

HPLC-Analysis

Column type: Hypersil Gold 175-5 μ , C18, 250 x 4.6 mm
 Mobile Phase: Acetonitrile/Orthophosphoric acid pH 2.5 (17/83, v/v)
 Sample solvent: Methanol/Water 2:1
 Flow rate: 1.00 mL/min
 Injection vol.: 10 μ L
 Detection: DAD, 210-500 nm
 Column temp.: 20 $^{\circ}$ C



3: 270 nm, 4 nm

| PK # | Retention Time | Area | Area Percent | Capacity factor | Lambda Max |
|--------|----------------|---------|--------------|-----------------|------------|
| 1 | 4.800 | 2312 | 0.06 | 0.66 | 212 |
| 2 | 5.003 | 2837 | 0.08 | 0.73 | 212 |
| 3 | 5.525 | 6012 | 0.17 | 0.91 | 213 |
| 4 | 5.696 | 16239 | 0.45 | 0.97 | 268 |
| 5 | 6.027 | 1698 | 0.05 | 1.09 | 216 |
| 6 | 8.416 | 3581610 | 98.98 | 1.91 | 267 |
| 7 | 17.653 | 7660 | 0.21 | 5.11 | 212 |
| Totals | | 3618368 | 100.00 | | |

Analytical Report to the Certificate of Analysis (CA)

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Sennoside B

Batch No.: 0511203

HPLC-Analysis

| Spectrum Max Plot ^{*)} | | | | | | | |
|---------------------------------|----------------|----------|--------------|-----------------|------------|--|--|
| Pk # | Retention Time | Area | Area Percent | Capacity factor | Lambda Max | | |
| 1 | 4.800 | 5552 | 0.05 | 0.66 | 212 | | |
| 2 | 5.013 | 7644 | 0.06 | 0.73 | 212 | | |
| 3 | 5.536 | 18556 | 0.16 | 0.91 | 270 | | |
| 4 | 5.696 | 50228 | 0.42 | 0.97 | 268 | | |
| 5 | 5.984 | 5327 | 0.05 | 1.09 | 212 | | |
| 6 | 6.976 | 29197 | 0.25 | 1.41 | 211 | | |
| 7 | 7.253 | 27817 | 0.24 | 1.51 | 211 | | |
| 8 | 7.723 | 2389 | 0.02 | 1.67 | 212 | | |
| 9 | 8.416 | 11667945 | 98.69 | 1.91 | 267 | | |
| 10 | 17.611 | 8161 | 0.07 | 5.09 | 219 | | |
| Totals | | 11822816 | 100.00 | | | | |

*) A Spectrum Max Plot is a chromatogram with each point plotted at its maximum absorbance within the detection range. This plot gives an indication of the appearance of the chromatogram when the wavelengths are optimized for each peak.

DAD UV-Spectrum

Spectrum at time 8.42 min.

